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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,954	05/04/2007	Brady Reuben Davies	1-24871	4408
James D. Schweikert MacMillan, Sobanski & Todd One Maritime Plaza, Fifth Floor 720 Water Street Toledo, OH 43604				
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EXAMINER				
VINIL LAN				
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1792				
MAIL DATE		DELIVERY MODE		
10/22/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/590,954

**Applicant(s)**

DAVIES, BRADY REUBEN

**Examiner**

LAN VINH

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-23 and 26-38 is/are rejected.  
7) ☒ Claim(s) 24 and 25 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 010307  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 9-10, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurtz et al (US 5,543,349)

Kurtz discloses a method for fabricating a beam pressure sensor. The method comprises :

providing a first layer of material 20, providing a second layer of material 30, providing a coating 26 (oxide) on a first portion of the first layer 28 (col 5, lines 0-35), bonding by fusion bonding the first layer and the second layer to each other to form a beam/micromachined device (col 5, lines 25-28), the coating being effective to prevent the coated portion from bonding with the second layer (fig. 8)

Regarding claims 2-3, Kurtz also discloses that SiN can be used in place of oxide (col 5, lines 1-4)

Regarding claim 11, Kurtz discloses masking a second portion of the first layer wherein the second portion comprises an area of the first layer 20 that is not to be coated by the coating (fig. 5)

2. Claims 1, 4-5, 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Neukermans et al (US 6,224,445)

Neukermans discloses a method for fabricating a thin membrane window. The method comprises:

providing a first layer of material 28, providing a second layer of material 44, providing a coating 66 on a first portion of the first layer 28 (col 9, lines 25-35), bonding by the first layer and the second layer to each other to form a micromachined device (col 9, lines 40-44), the coating being effective to prevent the coated portion from bonding with the second layer (fig. 9B)

Regarding claim 4, Neukermans discloses that the second layer 44 has a plurality of mechanical parts 76 formed in, the mechanical parts being movable relative to a stationary portion of the second layer (fig. 12)

Regarding claim 5, Neukermans discloses that a coating 66 is provided on the first layer 28 at a position that corresponds to the position of the mechanical parts formed in the second layer, such that when the first layer is positioned adjacent the second layer, the coating portion is adjacent the mechanical parts

Regarding claim 6, Neukermans discloses providing a third layer of material providing a coating 48 on a first portion of the third layer; bonding the third layer to the

second layer, wherein the coating on the third layer is effective to prevent the coated portion from bonding with the second layer ( col 11, lines 1-7; fig. 9B)

Regarding claim 7, Neukermans discloses that the coating 48 is provided on the third layer at a position that corresponds to the position of the mechanical parts formed on the second layer, such that when the third layer is positioned adjacent the second layer, the coating portion is adjacent the mechanical parts 76 (fig. 12)

Regarding claim 8, Neukermans disclose thinning the first portion of the first layer by etching to reduce the thickness thereof such that when the coating material is applied to the first portion, an upper surface of the coating 48 is substantially flush with an adjacent upper surface of the first layer ( fig. 12)

3. Claims 13-15, 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Neukermans et al (US 6,224,445)

Neukermans discloses a method for fabricating a thin membrane window. The method comprises:

providing a first layer of material 28, providing a second layer of material 44, providing a coating 66 (gold) on a first portion of the first layer 28 (col 9, lines 25-35), bonding by the first layer and the second layer to each other to form a micromachined device (col 9, lines 30-44), wherein bonding of the second layer and the first layer occurs only where the coating contacts both layers (fig. 12)

Regarding claim 14, Neukermans discloses that the second layer 44 has a plurality of

mechanical parts 76 formed in, the mechanical parts being movable relative to a stationary portion of the second layer

Regarding claim 15, Neukermans discloses masking the mechanical part in layer 44/second layer such that some of the mechanical part remain uncoated (fig. 12)

Regarding claim 16, fig. 9B of Neukermans shows that only a selected portion of the first layer 28 is coated such that a portion of the first layer remains uncoated, and positioning the first layer and the second layer adjacent each other such that the uncoated portion of the first layer is positioned adjacent the mechanical parts of the second layer 44

Regarding claim 17, Neukermans discloses providing a third layer of material, coating a selected portion of the third layer such that a portion of the third layer remains uncoated; positioning the third layer and the second layer adjacent each other such that the uncoated portion of the third layer is positioned adjacent a mechanical part 59 of the second layer ( fig. 9B), bonding the third layer and the second layer to each other, wherein bonding of the second layer and the third layer occurs only where the coating contacts both layers ( col 11, lines 1-5, fig. 9B)

Regarding claim 18, Neukermans disclose thinning the first portion of the first layer by etching to reduce the thickness thereof such that when the coating material is applied to the first portion, an upper surface of the coating 48 is substantially flush with an adjacent upper surface of the first layer ( fig. 12)

4. Claims 21, 22-23, 26-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinohara et al (US 6,724,718)

Shinohara discloses a method for manufacturing an optical head. The method comprises:

providing a plurality of layers of material, including a first layer 7001 and a second layer 7002, wherein the first layer includes a slider part 7001/movable microvalve portion that is movable relative to a stationary portion (smaller/right portion) of the first layer (col 17, lines 1-5; fig. 10)

coating a portion of the second layer with layer 7004, positioning the coated portion of the second layer adjacent to the movable microvalve portion of the first layer 7001 (fig. 10)

performing a bonding operation/direct bonding to bond the plurality of layers together, wherein the layer 7004/coating prevents the slider part/movable microvalve portion of the first layer from bonding with the coated portion of the second layer while an uncoated portion of the second layer joins/bonds to the stationary portion (right portion) of the first layer (col 18, lines 25-30; fig. 10)

Regarding claim 26, Shinohara discloses thinning the first portion of the second layer, by etching, to reduce the thickness thereof such that when the coating material 7004 is applied to the second layer, an upper surface of the coating is substantially flush with an adjacent surface of the second layer 7002 (col 15, lines 20-41)

Regarding claims 22-23, Shinohara discloses forming a masking layer/coating layer 160 (SiN) on the second layer (col 15, lines 15-27; fig. 13)

Regarding claim 29, Shinohara discloses masking a second portion of the second layer with layer 7903 wherein the second portion comprises an area of the second layer that

is not to be coated by the coating when the coating is applied to the rest of the second layer (fig. 10)

5. Claim 31 is rejected under 35 U.S.C. 102(e) as being anticipated by Shinohara et al (US 6,724,718)

Shinohara discloses a method for manufacturing an optical head. The method comprises:

providing a plurality of layers of material, including a first layer 7001 and a second layer 7002, wherein the first layer includes a slider part 7001/movable microvalve portion that is movable relative to a stationary portion (smaller/right portion) of the first layer (col 17, lines 1-5; fig. 10)

coating a portion of the second layer with layer 7903, positioning the coated portion of the second layer adjacent to the stationary portion of the first layer 7001 (fig. 10)

performing a bonding operation to bond the plurality of layers together, wherein the coating causes the stationary portion to bond with the coated portion of the second layer, while the uncoated portion (upper right portion) of the second layer does not bond with the movable microvalve portion of the first layer ( col 18, lines 25-30; fig. 10)

6. Claim 32 is rejected under 35 U.S.C. 102(e) as being anticipated by Shinohara et al (US 6,724,718)



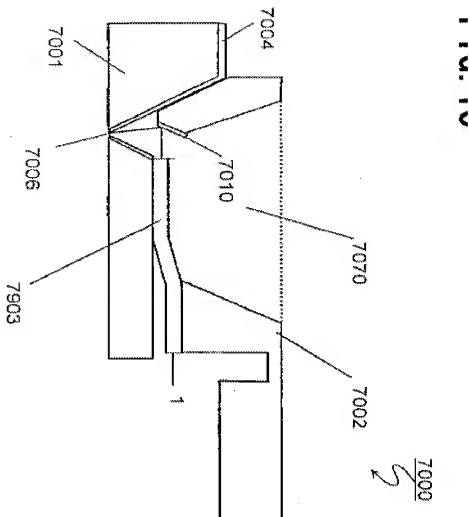
Shinohara discloses a method for manufacturing an optical head. The method comprises:

providing a first/slider part 7001/first silicon layer and second 7002 silicon layer ( col 9, lines 60-65)

etching a portion of the second silicon layer to form a portion of a micromachined device including a slider portion and a layer portion such that the slider portion is movable relative to the layer portion ( col 11, lines 20-30)

coating a portion of the first silicon layer with a coating material 7004, the coated portion having a size and shape that corresponds to the size and shape of the slider portion ( col 17, lines 1-5, fig. 10)

positioning the first silicon layer 7001 over the second silicon layer 7002 such that the coated portion of the first silicon layer is substantially aligned with the slider portion of the second silicon layer (fig. 10 as shown below)



performing a bonding operation to bond the first silicon layer to the second silicon layer, wherein the coating material separates the slider portion from the first silicon layer during the bonding operation to prevent the slider portion from bonding with the first layer (col 18, lines 25-30; fig. 10)

7. Claims 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinohara et al (US 6,724,718)

Shinohara discloses a method for manufacturing an optical head. The method comprises:

providing a slider part 7001/ second silicon layer and a 7002 silicon layer/first silicon layer ( col 9, lines 60-65)

etching a portion of the second silicon layer to form a portion of a micromachined device including a slider portion and a layer portion such that the slider portion is movable relative to the layer portion ( col 11, lines 20-30)

coating a portion of the first silicon layer with a coating material 7004, the coating is placed where bonding is desired, the coating is selectively masked to be prevented from coating areas over the slider portion and removed from areas over the slider portion ( col 17, lines 1-5, fig. 10, fig. 11c)

positioning the first silicon layer 7002 over the second silicon layer 7001 such that the uncoated portion of the first silicon layer is substantially aligned with the slider portion of the second silicon layer (fig. 10)

performing a bonding operation to bond the first silicon layer to the second silicon layer only in areas where the coating is placed, where the uncoated area (the small area adjacent to layer 7010) of the layer 7002/first silicon layer separate the slider portion from the first silicon layer during the bonding operation to prevent the slider portion from bonding with the first layer (col 18, lines 25-30; fig. 10)

Regarding claim 34, Shinohara discloses that the masking/coating layer comprises of silicon dioxide (col 15, lines 20-25)

8. Claims 36-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinohara et al (US 6,724,718)

Shinohara discloses a method for manufacturing an optical head. The method comprises:

Shinohara discloses a method for manufacturing an optical head. The method comprises:

providing a plurality of layers of material, including a first layer 7001 and a second layer 7002 (col 17, lines 1-5; fig. 10)

providing a coating 7004 on a portion of the layer 7001 (fig. 10)

etching the first layer to form a portion of a micromachined device including a slider portion and a layer portion such that the slider portion is movable relative to the layer portion, the slider portion substantially corresponds to the size and shape of the coating portion ( col 11, lines 20-30, fig. 10)

performing a bonding operation/direct bonding to bond the first and second layer, wherein the layer 7004/coating prevents the slider part/movable microvalve portion of the first layer from bonding with the coated portion of the second layer (col 18, lines 25-30; fig. 10)

Regarding claim 37, Shinohara discloses that the masking/coating layer comprises of silicon dioxide (col 15, lines 20-25)

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al (US 5,543,349) in view of Ting (US 5,856,705)

Kurtz method has been described above. Unlike the instant claimed invention as per claim 12, Kurtz fails to disclose that the coating is applied with a thickness of 10 Angstroms to 100 micrometers.

Ting discloses a process for forming a sealed chip comprises a step of forming a coating having a thickness of 500 angstroms (col 4, lines 1-5)

One skilled in the art at the time the invention was made would have found it obvious to modify Kurtz method by forming a coating having a thickness of 500 angstroms because Ting discloses that thin nitride/coating will minimize the stress and deleterious effects upon device performance (see abstract)

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neukermans et al (US 6,224,445) in view of Ting (US 5,856,705)

Neukermans method has been described above. Unlike the instant claimed invention as per claim 20, Neukermans fails to disclose that the coating is applied with a thickness of 10 Angstroms to 100 micrometers.

Ting discloses a process for forming a sealed chip comprises a step of forming a coating having a thickness of 500 angstroms (col 4, lines 1-5)

One skilled in the art at the time the invention was made would have found it obvious to modify Neukermans method by forming a coating having a thickness of 500 angstroms because Ting discloses that thin nitride/coating will minimize the stress and deleterious effects upon device performance (see abstract)

11. Claims 30, 35, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al (US 6,724,718) in view of Ting et al (US 5,856,705)

Shinohara method has been described above. Unlike the instant claimed invention as per claims 30, 35, 38, Shinohara fails to disclose that the coating is applied with a thickness of 10 angstroms to 100 micrometers

Ting discloses a process for forming a sealed chip comprises a step of forming a coating having a thickness of 500 angstroms (col 4, lines 1-5)

One skilled in the art at the time the invention was made would have found it obvious to modify Shinohara method by forming a coating having a thickness of 500 angstroms because Ting discloses that thin nitride/coating will minimize the stress and deleterious effects upon device performance (see abstract)

***Allowable Subject Matter***

12. Claims 24-25 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 24, the cited prior art of record fails to disclose or suggest a method of forming a microvalve comprises a step of bonding the third layer to the first layer, wherein the coating on the third layer is effective to prevent the movable microvalve portion of the first layer from bonding with the coated portion of the third layer while an uncoated portion of the third layer bonds to the stationary portion of the first layer, in combination with the rest of the limitations of claim 24

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAN VINH whose telephone number is (571)272-1471.

The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lan Vinh/  
Primary Examiner, Art Unit 1792



